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## MEMORANDUM

**TO:** Story County Board of Supervisors  
**FROM:** Amelia Schoeneman, Planning and Development Director  
**RE:** Second Consideration of Ordinance 302, amending Chapter 80, Floodplain Management Program, of the Story County Code of Ordinances  
**DATE:** February 8, 2022

### February 1, 2022, Board of Supervisors Meeting

The Board of Supervisors took action to approve the ordinance with an amendment at the February 1, 2022, meeting. The amendment includes adding a buffer around a stream where trenchless construction is also required. The proposed language to be added to the Story County Code of Ordinances 80.12(3)(I) and 80.13(3)(N) is as follows:

*Only trenchless construction methods shall be permitted for pipeline installations. An undisturbed stream buffer shall be maintained where trenchless methods are also required. The buffer shall be 50 feet or the channel width, measured as the average width between the top of the opposing banks, whichever is greater. The buffer shall be the required width on either side of the stream, measured from the stream edge. The buffer may be reduced to the width of the Special Flood Hazard Area in the case that the required buffer is larger than the Special Flood Hazard Area.*

The amended ordinance was made available at the County Auditor's Office and rerouted to County Departments. No comments were received.

### Recommendation

The Board of Supervisors may consider the following alternatives:

- 1. The Story County Board of Supervisors approves Ordinance 302, amending Chapter 80, Floodplain Management Program, of the Story County Code of Ordinances, on second consideration and waives third consideration.**
2. The Story County Board of Supervisors approves Ordinance 302, amending Chapter 80, Floodplain Management Program, of the Story County Code of Ordinances, on second consideration and sets third consideration for Tuesday, February 15, 2022.
3. The Story County Board of Supervisors denies Ordinance 302, amending Chapter 80, Floodplain Management Program, of the Story County Code of Ordinances, on second consideration and sets third consideration for Tuesday, February 15, 2022.



4. The Story County Board of Supervisors remands Ordinance 302, amending Chapter 80, Floodplain Management Program, of the Story County Code of Ordinances, back to staff for additional information, and directs staff to set second consideration for Tuesday, February 15, 2022.

### **Additional Background**

Two potential interstate pipeline projects are proposed for Story County that may be constructed in the next two to three years. Based on preliminary maps, these projects may result in at least 25 pipeline stream crossings. For comparison, the Dakota Access Pipeline route required six stream crossings. Story County has several other natural gas pipelines and other utilities that require stream crossings.

There are two methods for a pipeline to cross a stream: open trench or trenchless construction. Open trench construction requires a trench to be dug in a stream bed and bank, the pipeline installed, and soils backfilled into the trench. The stream may be redirected through a pipe, dammed and pumped around, or allowed to flow through the area while the work occurs.

Trenchless construction has a much smaller footprint. Two bore pits on either side of the stream are dug and an underground channel is drilled. The pipe is then pulled through the channel. This means that the stream banks and bed are not, or are very minimally, disturbed.

From a floodplain management perspective (minimizing flood losses and protecting a floodplain's natural function), there are several concerns with pipeline stream crossings. The first is that the pipeline be buried in the stream bed. Aerial crossings where the pipeline is above the stream bed can obstruct flood flows and present structural issues for the pipe during a flood event. The county's floodplain regulations require that a pipeline be buried. A second concern is that the pipeline is buried to a sufficient depth that during a storm event that creates a flashy stream flow, a larger flood event, or over time the pipeline does not become exposed due to stream erosion. Our ordinance also requires that the pipeline be buried to a sufficient depth to prevent future exposure.

A third concern is regarding the construction method and preventing erosion during and after construction. While a disturbed stream bank or bed would need to be compacted or stabilized after installation, the best way to stabilize an area is to minimize the disturbance in the first place. This has obvious water quality impacts in preventing excess sediment from contaminating a water body. It also has benefits for sensitive environmental areas. From a floodplain management perspective, if we can use a construction method that leads to less disturbance, which in turn will lead to less potential for erosion in the long-term, it helps prevent pipeline exposure, flood flow obstructions, and hazardous material contamination. No or minimal disturbance to soils prevents erosion because it helps maintain the soil's [aggregate stability](#). Disturbance breaks down soil aggregates. Individual soil particles are more easily dislodged by wind and water.

To address the third concern, staff is proposing to amend the ordinance to require pipeline stream crossings be completed using only trenchless methods.



Trenchless methods can be more expensive. Specialized equipment and geotechnical analysis is required. The Dakota Access Pipeline was only installed using trenchless methods when it crossed the Skunk River in Story County. The other crossings were open trench.

The inadvertent discharge of drilling fluids is a risk of trenchless construction. Staff used the Iowa DNR Hazardous Materials Release Database to assess this risk. There were 34 incidents of drilling fluid releases since July of 2006. Mainly (22) these releases were of bentonite mixtures, a fine clay. These releases are not a threat to fish or humans—no fish kills were reported. The spills mainly present turbidity issues. Erosion from open trench construction presents these same issues and is a result of the construction method, not from a spill or other unforeseen incident. Drilling fluid can contain chemicals, however. Staff found one incident last year where it was indicated that the drilling fluid contained petrochemicals. The report indicates 10 gallons of fluid was released into the Raccoon River. “The MidAmerican crew turned off the boring rig and released the pressure stopping the mud from releasing to the river. The crew is going to back out and bore head and bore a deeper line under the river to prevent the fracking from reoccurring.” If a site does present constraints such that an open trench would be more appropriate, a variance could be sought. Generally, the trench can be bored deeper or in a different location to avoid an issue. The Iowa Department of Natural Resources (DNR) also must approve variances.

